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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/812,768

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Jung-Hun Seo

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7590

11/15/2006

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EXAMINER

MOORE, KARLA A

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/812,768		SEO ET AL.	
	Examiner		Art Unit	
	Karla Moore		1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-32 is/are pending in the application.
- 4a) Of the above claim(s) 16-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-15,31 and 32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 3 and 4 are objected to because of the following informalities: The depend on a cancelled claim. Appropriate correction is required. For examination purposes, it was assumed that the claims were meant to depend from claim 1.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 3-6, 9-14 and 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,319,766 to Bakli et al.

4. Bakli et al. disclose a metal deposition processing apparatus in Figures 1-3, comprising: a first processing chamber configured for holding a semiconductor substrate therein; a second processing chamber configured for holding the semiconductor therein and forming an upper metal layer thereon, wherein the first processing chamber is configured for forming a barrier metal layer on the semiconductor substrate, and the second processing chamber is configured for forming the upper metal layer on at least a portion of the barrier metal layer on the semiconductor substrate; and a transfer chamber isolated from an oxygen atmosphere and connected to the first processing chamber and the second processing chamber, the transfer chamber configured to transfer the semiconductor between the first processing chamber and the second processing chamber.

5. With respect to claims 3 and 4, the first processing chamber is a metal organic CVD chamber including at least one source gas supply conduit that supplies a metal organic precursor. See Figure 3.

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6. With respect to claims 5 and 6, the first processing chamber is also configured to flush a barrier metal layer on the semiconductor substrate, using a flushing gas supply conduit (column 6, rows 7-12 and column 9, rows 37-46).
7. With respect to claims 9-14, the apparatus disclosed is a conventional cluster tool comprising all of the limitations recited in the claims. Additional features of the cluster tool are described in US 5,186,718, which is incorporated by reference.
8. With respect to claims 31 and 32, Bakli et al. further teach a controller configured to control all of the operations of the cluster tool (column 7, row 38 through column 8, row 56).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
11. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bakli et al. as applied to claims 1, 3-6, 9-14 and 31-32 above.
12. Claims 7 and 8 are drawn to the identity of a processing gas that may be used during an intended use of the claimed apparatus.

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13. The courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

14. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bakli et al. as applied to claims 1, 3-6, 9-14 and 31-32 above in view of by U.S. Patent 5,740,034 to Saeki.

15. Bakli et al. disclose the invention substantially as claimed and as described above. It is further noted that Bakli et al. teach providing additional pre- and post-processing chambers as part of a cluster tool, as needed, (see US 5,186,718, which is incorporated by reference) for the purpose of providing a comprehensive manufacturing sequence for the semiconductor substrate in a single environment..

16. However, Bakli fail to explicitly teach providing an alignment chamber with an optical sensor.

17. Saeki et al. teach providing an alignment chamber (30) with an optical sensor may also be provided connected to the processing chamber for the purpose of properly positioning a wafer to be processed (column 9, row 66 through column 10, row 13).

18. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an alignment chamber with an optical sensor in Bakli et al. in order to properly position a wafer to be processed as taught by Saeki et al.

Response to Arguments

19. Applicant's arguments with respect to claims 1, 3-15 and 31-32 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat Pub 2001/0005056 discloses a cluster tool for forming a barrier layer and a metal layer. JP Pat Pub 2001041802 A teaches using TiCl₄ gas in forming a barrier layer.

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21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


KARLA MOORE
PRIMARY EXAMINER

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12 November 2006